# Correlation Between Students' Satisfaction With Studies and Graduation

**Tero Reunanen[1,2], Marjo Joshi[1], and Vesa Taatila[1]**

[1]Turku University of Applied Sciences, Turku 20520, Finland
[2]University of Vaasa, Vaasa 65200, Finland

## ABSTRACT

Student satisfaction is a critical metric for universities, providing valuable insights for organizational development. This study, conducted at Turku University of Applied Sciences (TUAS) in Finland, builds upon previous research that established a correlation between student satisfaction and personnel's perceived justice as well as satisfaction between academic year and discipline. The research utilized two distinct questionnaires: the Student Barometer, a comprehensive tool capturing various aspects of student life, and the AVOP questionnaire, a feedback tool for graduating students. The data, comprising responses from these questionnaires and graduation statistics, was meticulously analyzed using Excel and SPSS. Students were grouped based on their schools and degrees, and arithmetic averages and standard deviations were calculated for each proposition. Further analysis was conducted using SPSS, where correlations between propositions were analyzed using a one-tailed Pearson correlation. The central research question was: "Is there a correlation between student satisfaction and graduation levels?" If such a correlation exists, the study aimed to interpret these correlations and draw meaningful conclusions. Despite the anticipation that student satisfaction would positively influence graduation rates, the study found no clear correlation between these variables. This paper not only presents the findings of this research but also discusses future research aspects and practical recommendations, contributing to the ongoing discourse on student satisfaction and its impact on graduation rates.

**Keywords:** Leadership, Organizational behaviour, Management, Satisfaction, Graduation, University

## INTRODUCTION

Student satisfaction with their studies is a crucial metric for universities, often gathered through student questionnaires. Understanding the level of satisfaction, and how to improve or maintain it, is the key to the student-centric development of the organization and its educational programs. The reasons behind varying levels of satisfaction among students can sometimes be easily explained, while at other times, they may have critical implications for the organization's future.

Reunanen and Taatila (2021) have demonstrated a correlation between student satisfaction and personnel's perceived justice. They also found strong

indications of a connection between a university student's year of study, academic discipline, and their satisfaction (Reunanen and Taatila, 2022). Joshi et al. (2022) examined the overall student satisfaction at TUAS during the pandemic and the perceptions that students in different study years had of quality of teaching during the pandemic. The results showed the perceptions varied between different year groups, and the open answers highlighted the importance of practical training and thesis work for the fourth-year students, indicating their importance for those near graduation (Joshi et al., 2022). This paper aims to delve deeper into the topic by examining the connections between student satisfaction and the graduation rates.

TUAS has previously studied these attributes, as well as the correlation between staff satisfaction and student satisfaction. We have shown that student satisfaction correlates with personnel's perceived justice and have identified variables such as discipline and year of study that affect student satisfaction. The interest in student satisfaction stems from its potential role as a positive factor when examining graduation rates.

The national goal in Finland is to increase considerably the share of the young persons with higher education to provide competent professional work force to local working life (Finnish Government, 2023). Thus, there is significant national interest in identifying variables that could enhance student graduation rates. In daily parlance the student and graduate satisfaction could have major impacts on graduation rates. If that is true, creating a system that better satisfies students could give a university a significant competitive edge over other institutions.

In an educational organization, many desired outcomes are tied to the academic performance and progression of students. This has become increasingly important in the increasingly competitive world of higher education, where metrics related to graduate production have become paramount, either in student acquisition-related comparison tools (U-Multirank, 2021) or in securing public funding, as is the case in Finnish fully competitive higher education funding model (Finnish Ministry of Education and Culture, 2021). A substantial body of literature argues that a school's overall social climate is associated with pupils' academic performance and wellbeing (Anderson 1982; Han 2009; Hill & Tyson 2009; Karvonen et al., 2005; Maddox & Printz 2003).

From the theoretical discussion, we derived a hypothesis (H1) and a research question (RQ1): (H1): There is a correlation between students' satisfaction and their on-time graduation. (RQ1): If this correlation exists, how can it be interpreted, and what conclusions can be drawn?

## RESEARCH

### Initial Sample

This study is based on data collected from Turku University of Applied Sciences (TUAS) between 2019 and 2023. The research tools employed include the Student Barometer and AVOP questionnaires, as well as graduation statistics from TUAS.

AVOP is a feedback questionnaire designed for graduating students to evaluate and provide feedback on their education. It is annually done standardized questionnaire. Developed in collaboration with the Rectors' Conference of Finnish Universities of Applied Sciences (ARENE), the Union of Students in Finnish Universities of Applied Sciences (SAMOK), the Foundation for Research on Studying and Education (OTUS), and the Ministry for Education and Culture, AVOP is a comprehensive tool for gathering student feedback. Even though it is not based on solid scientific basis the strengths of AVOP are vast number of annual samples covering all universities of applied sciences in Finland. Therefore, the background information from answerers is limited to basic democratic variables and possibilities to scrutiny different student groups are also limited (AVOP, 2024). As the AVOP-results from one metric in the funding model of the universities of applied sciences, they have a strong motivation in ensuring that all the graduates fill this questionnaire. That has resulted into very high response rates of over 95 percent. This study utilized all available AVOP responses for Turku University of Applied Sciences totalling 8474 individual answers, from bachelor-level studies conducted between 2019 and 2023. Responses were evaluated on a scale of 0 to 6.

The Student Barometer is a questionnaire designed for higher education students at TUAS. Its objective is to gather data and information for researchers, educational developers, and decision-makers within the institution. The Student Barometer covers a wide range of study-related topics, from the quality of studies to students' civil life activities and future expectations. This study used data from the Student Barometer, which consisted of responses from 2934 individual students from the years 2019 and 2020. The students, who were in different academic years, responded to up to 201 different questions and propositions. As the questionnaire was dynamic and partly dependent on previous answers, not all questions and propositions were presented to all students. Student satisfaction was studied by analyzing responses to the proposition: "Evaluate how satisfied you are to study in TUAS." Responses were given on a scale of 1-5, where 1 indicated very unsatisfied, and 5 indicated very satisfied.

This study also utilized graduation data from TUAS between 2019 and 2023 for all bachelor-level studies. The total number of graduates during this period was 8689. The data was analyzed by dividing students' target graduation time into those who graduated within the target time and those who graduated after the target time. The percentage of students graduating within the target time was chosen as the variable for analysis. At TUAS, the target time for bachelor's degree completion can range between 3.5 and 4.5 years.

## Analysis

The data was analyzed using Excel and SPSS. Samples were extracted from the dataset and used to construct a statistical model in an Excel spreadsheet. The data was categorized based on competence areas, also referred to as schools, which include:

1. Chemical Industry,
2. Construction Industry,

3.  Entrepreneurship and Sales,
4.  Fine Arts,
5.  Information and Communications Technology,
6.  Logistics, Services and Industrial Management,
7.  Media Arts,
8.  Nursing,
9.  Paramedicine, Public Health Nursing and Midwifery,
10. Performing Arts,
11. Rehabilitation, Oral Health and Diagnostic Services,
12. Social Work and Early Childhood Care, and
13. Technology Industry. This resulted in 13 distinct student groups.

The data was then organized into 12 different variables, each representing AVOP responses from 2019 to 2023, the ratio of on-time graduates to all graduates from 2019 to 2023, and Student Barometer responses regarding student satisfaction from 2019 and 2020. Arithmetic averages were calculated for each dataset.

The schools and variables are presented in Table 1. The schools are numbered in the same order as they are introduced in the text. The variables are labelled such that 'A' represents AVOP responses, 'TT' represents target time, and 'S' represents student satisfaction. The number following these letters corresponds to the year. It is worth mentioning that there are major differences in graduation rates between different schools. Roughly speaking, the professions in which a diploma is required to get a professional position (i.e. health care, social work, civil engineering = schools 2, 8, 9, 11 and 12), the graduation rates in target time are considerably better than in the schools in which the positions are not directly related to graduation.

**Table 1.** Averages of each variable and school.

| School | A19 | A20 | A21 | A22 | A23 | TT 19% | TT 20% | TT 21% | TT 22% | TT 23% | S 19 | S 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.86 | 5.12 | 5.35 | 5.28 | 5.43 | 50.00 | 42.42 | 63.75 | 64.36 | 73.68 | 3.69 | 3.60 |
| 2 | 4.82 | 5.06 | 5.06 | 5.23 | 5.10 | 72.73 | 83.05 | 72.44 | 66.13 | 70.43 | 3.75 | 3.70 |
| 3 | 5.03 | 5.05 | 5.24 | 5.28 | 5.26 | 56.37 | 56.56 | 60.33 | 59.47 | 65.64 | 3.44 | 3.56 |
| 4 | 4.79 | 4.72 | 4.86 | 5.04 | 5.41 | 76.00 | 69.57 | 84.38 | 80.77 | 75.76 | 3.61 | 3.70 |
| 5 | 5.18 | 5.29 | 5.18 | 5.37 | 5.29 | 56.02 | 45.21 | 58.06 | 49.32 | 51.49 | 3.72 | 3.64 |
| 6 | 5.02 | 5.08 | 5.12 | 5.17 | 5.09 | 53.59 | 54.98 | 71.53 | 61.94 | 66.84 | 3.69 | 3.66 |
| 7 | 5.14 | 4.77 | 5.06 | 5.09 | 4.96 | 58.57 | 73.33 | 71.01 | 64.58 | 46.75 | 3.42 | 3.69 |
| 8 | 4.79 | 4.90 | 4.88 | 5.12 | 5.10 | 86.08 | 81.48 | 82.10 | 85.92 | 87.15 | 3.46 | 3.49 |
| 9 | 4.94 | 5.16 | 5.28 | 5.40 | 5.50 | 82.79 | 85.86 | 88.31 | 91.55 | 93.55 | 3.37 | 3.59 |
| 10 | 5.07 | 4.81 | 5.17 | 5.07 | 5.02 | 61.90 | 60.47 | 71.43 | 62.22 | 63.64 | 3.81 | 3.65 |
| 11 | 5.15 | 5.18 | 5.16 | 5.22 | 5.31 | 85.08 | 80.36 | 83.74 | 84.62 | 85.88 | 3.41 | 3.57 |
| 12 | 4.87 | 5.05 | 5.15 | 5.17 | 5.16 | 82.93 | 77.54 | 79.34 | 84.33 | 76.69 | 3.24 | 3.18 |
| 13 | 4.98 | 4.85 | 4.89 | 5.17 | 5.38 | 64.90 | 50.86 | 53.57 | 62.70 | 52.42 | 3.51 | 3.72 |

Following the calculation of arithmetic averages, a more in-depth analysis was conducted using the SPSS statistical analysis program. In this analysis, the correlations between variables were examined using a one-tailed Pearson correlation. The results of this analysis are presented in Table 2.

From the data in Table 2, it is evident that there were no clear correlations between the variables. However, a few statistically significant correlations were identified. A positive correlation was found between the AVOP 2019

questionnaire responses and the target graduation time for 2023 graduates. However, considering that the student groups are different, we can deduct that this correlation is most likely incidental.

A negative correlation was observed between the Student Barometer 2019 responses and the target graduation time for the years 2019, 2020, and 2021. Even that this is a done observation, this seems to be just coincidence.

Other statistically significant correlations were identified among the AVOP responses for the years 2020, 2021, and 2022, which all correlated with each other, as well as with the responses for 2023. Additionally, significant correlations were found among the target graduation times for different years, with all target graduation years correlating with each other.

**Table 2.** Pearson's correlation.

|       | A20   | A21     | A22     | A23     | TT19    | TT20    | TT21    | TT22    | TT23    | S 19      | S10     |
|-------|-------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|---------|
| A19   | 0.262 | 0.334   | 0.203   | −0.196  | −0.385  | −0.295  | −0.348  | −0.470  | −0.511$^*$ | 0.032   | 0.231   |
| A20   | 1     | 0.670$^{**}$ | 0.873$^{**}$ | 0.331   | −0.042  | −0.117  | −0.083  | −0.076  | 0.247   | −0.014    | −0.246  |
| A21   |       | 1       | 0.666$^{**}$ | 0.193   | −0.346  | −0.233  | −0.107  | −0.167  | 0.125   | 0.026     | −0.209  |
| A22   |       |         | 1       | 0.530$^*$ | −0.102  | −0.142  | −0.186  | −0.097  | 0.177   | −0.074    | −0.072  |
| A23   |       |         |         | 1       | 0.128   | −0.181  | 0.024   | 0.253   | 0.367   | −0.142    | 0.068   |
| TT19  |       |         |         |         | 1       | 0.850$^{**}$ | 0.782$^{**}$ | 0.893$^{**}$ | 0.725$^{**}$ | −0.551$^*$ | −0.453  |
| TT20  |       |         |         |         |         | 1       | 0.824$^{**}$ | 0.790$^{**}$ | 0.601$^*$ | −0.499$^*$ | −0.306  |
| TT21  |       |         |         |         |         |         | 1       | 0.885$^{**}$ | 0.792$^{**}$ | −0.362    | −0.320  |
| TT22  |       |         |         |         |         |         |         | 1       | 0.852$^{**}$ | −0.622$^*$ | −0.472  |
| TT23  |       |         |         |         |         |         |         |         | 1       | −0.328    | −0.421  |
| S19   |       |         |         |         |         |         |         |         |         | 1         | 0.637$^{**}$ |

*. Correlation is significant at the 0.05 level (1-tailed).
**. Correlation is significant at the 0.01 level (1-tailed).

## RESULTS AND CONCLUSION

This study found no evidence of a correlation between student satisfaction and on-time graduation. The correlations identified between satisfaction data and graduation data appeared to be more random than consistent. The only correlation found between satisfaction and on-time graduation was between the satisfaction of 2019 graduates and the on-time graduates of 2023, making it challenging to establish a causal relationship. Additionally, the negative correlation between students in 2019 and on-time graduates in the years 2019, 2020, and 2021 is difficult to interpret, even though the result is somewhat consistent. The lack of continuity with the 2020 Student Barometer satisfaction data suggests this could be coincidental.

The statistically significant correlations between different years of on-time graduates provide insight that all schools have developed in a similar manner, indicating that the ratio of on-time graduates has mostly changed in the same direction across the years in all schools.

Upon reviewing the study's results, it is clear that our initial hypothesis (H1) was falsified. Consequently, the research question RQ1 must be revised to reflect this outcome: "Given that there is no correlation between student satisfaction and graduation, how can this be interpreted, and what conclusions can be drawn?"

This result is intriguing. The average score of the AVOP questionnaire has shown continuous growth from 4.97 in 2019 to 5.23 in 2023, with all but two schools (Performing Arts and Media Arts) showing improved results. Even these two schools have seen only modest decreases of $-0.18$ and $-0.05$, respectively. Despite the ever-improving satisfaction scores of graduating students, this has not affected the ratio of on-time graduating students. This contradicts the expected result and provides an interesting comparison to previous research. Reunanen & Taatila (2022) found that student satisfaction tends to decrease as graduation approaches, a finding supported by earlier research such as Nwenyi and Baghurst (2013) and Russo (2011). While there are differences in this aspect across separate studies, the overall trend seems to be a decrease in student satisfaction over the course of their studies. Russo (2011) attributes this trend primarily to the increasing and cumulative emotional and cognitive stress over the study years and as the transition to working life approaches. TUAS students have reported better satisfaction over the years at the moment of graduation, but this has not translated into quicker graduation. The students' satisfaction with studies during the COVID-19 pandemic at TUAS was examined in a previous study, where it was found that the general satisfaction level with studying at TUAS increased despite the pandemic (Joshi et al., 2022).

As H1 is negative over all the studied topics, it seems that student satisfaction is not actually a relevant metric when the goal is to increase the graduation rates. This could indicate that the graduation rates are less dependent on the actions of the higher education institution and more related to the personal goals of the student. For example, if the student wishes to graduate in a field where the diploma is required to get a professional position in work markets (i.e. health care, social work, civil engineering), the students have a strong personal incentive for graduating. In this sense it seems that it is more important to pay attention to smooth study processes than student satisfaction if the goal is to hasten the graduation speed. Naturally student satisfaction may (and most probably does) have other impacts on the graduating students, and thus it should not be neglected as a metric of improving performance of the higher education institutions.

It's worth noting that the COVID-19 pandemic may have affected the comparability of the years before, during, and after the pandemic, but this was not the research question in this study. One interesting finding was the connection between the completion of the compulsory practical training and planned graduation time, where the second to fourth year students seem to have felt the effect of the pandemic more than first year students. This may indicate that the previously discussed personal motivation to transition to professional life is more relevant to those near graduation (Joshi et al., 2022). Since this study revealed there was no significant connection between student satisfaction and target graduation time, it would be relevant to examine other possible factors influencing target graduation time. In the future, it would be interesting to examine how the university's support mechanisms for the practical training and thesis work may influence the target graduation time, as that was shown to be a relevant factor for final year students by Joshi et al.

(2022). In addition, it may be valuable to investigate the perceptions that students near graduation have of their identity as university students versus their professional identity to reveal possible preference on personal goals. Finally, examining the impact of career guidance as one of the metrics in the Student Survey may offer interesting insights on the decreasing student satisfaction nearing graduation (Taatila & Reunanen, 2022) and possible transition of focus on professional life (Russo, 2011).

## ACKNOWLEDGMENT

## REFERENCES

Anderson, C. S. (1982). The search for school climate: a review of the research. Research of Educational Research, 52(3), 368–420.

AVOP (2024) [Online] Available at: https://avop.fi/en.

Finnish Government (2023). A strong and committed Finland: Programme of Prime Minister Petteri Orpo's Government 20 June 2023 [Online] Available at: https://julkaisut.valtioneuvosto.fi/handle/10024/165044.

Finnish Ministry of Education and Culture (2021). Steering, financing and agreements of higher education institutions, science agencies and research institutes. Available at: https://minedu.fi/en/steering-financing-and-agreements.

Han, W. J. (2009). The academic trajectories of children of immigrants and their school environments. Developmental Psychology, 44, 1572–1590.

Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: a meta-analytic assessment of the strategies that promote achievement. Developmental Psychology, 45, 740–763.

Joshi, M., Helmi, S. & Roininen, M. (2022). Learning from Student Feedback – Developing University-Wide Guidelines to Support Distance Learning after COVID-19. In Burgsteiner, H. & Krammer, G. (eds.). Impacts of COVID-19 Pandemic's Distance Learning on Students and Teachers in Schools and in Higher Education International Perspectives. Leykam.

Karvonen, S., Vikat, A., & Rimpelä, M. (2005). The role of school context in the increase in young people's health complaints in Finland. Journal of Adolescence, 28(1), 1–16.

Maddox, S. J., & Prinz, R. J. (2003). School bonding in children and adolescents: conceptualization, assessment, and associated variables. Clinical Child and Family Psychology Review, 6, 31–49.

Nwenyi, S. & Baghurst, T. (2013). Demographic and Attitudinal Factors Influencing Doctoral Student Satisfaction. Canadian Social Science, 9(6), pp. 47–56.

Reunanen, T. J. & Taatila, V. P., (2021). Felt Justice. Correlations Between University Students and University Personnel. In: J. I. Kantola et al. (Ed.), AHFE 2021, LNNS 267, pp. 158–166.

Reunanen, T. J. & Taatila, V. P., (2022). Student Satisfaction Towards Studies: Disciplinary, Demographic or Situation Related Variable?. In: Salminen, V. et al. (ed.), Human Factors, Business Management and Society: Proceedings of 13th AHFE International Conference on Human Factors, Business Management and Society, New York, USA, July 24-28, 2022, 359–365. AHFE Open Access, 56. AHFE.

Russo, G. (2011). Graduate students: Aspirations and anxieties. Nature, 475, pp. 533–535.

U-Multirank (2021). 2020 World University Rankings. Available at: https://www.umultirank.org/.